

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or Agent's file reference	<b>FOR FURTHER ACTION</b>		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/FR03/00746	International filing date (day/month/year) 07.03.2003	Priority date (day/month/year) 08.03.2002	
International Patent Classification (IPC) or national classification and IPC G01S5/14			
Applicant THALES ET AL.			

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of 4 sheets including this title page.  <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Instruction 607 of Administrative Instructions of the PCT).  These annexes consist of a total of        sheets.
3.	This report contains indications relating to the following items: <ul style="list-style-type: none"> <li>I    <input checked="" type="checkbox"/> Basis of the report</li> <li>II   <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV  <input type="checkbox"/> Lack of unity of invention</li> <li>V    <input checked="" type="checkbox"/> Reasoned statement according to Rule 66(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI  <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>

Date of submission of the demand  04.09.2003	Date of completion of this report  12.11.2003
<b>Name and mailing address of the IPEA/</b>  <div style="display: flex; align-items: center;"> <div>             European Patent Office              D-80298 Munich              Tel. +49 89 2399-0, Tx: 523656 epmu d              Fax: +49 89 2399-4465           </div> </div>	<b>Authorized officer:</b>  Mercier, F  Telephone No. +49 89 2399-7454 <div style="text-align: right;"> </div>

INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

JC20 'd PCT/PTO 16 MAY 2005

International application No. PCT/FR03/00746

I. **Basis of the report**

1. This report has been drawn up on the basis of the following elements *(the replacement sheets received by the receiving office in response to an invitation according to Article 14 are considered in the present report as "originally filed" and are not annexed to the report as they contain no amendments (Rules 70.16 and 70.17).):*

**Description, pages:**

1-18 as originally filed

**Claims, No.:**

1-8 as originally filed

**Drawings, sheets:**

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/FR03/00746

5. ☐ This report has been written disregarding (some of) the amendments, which were considered as going beyond the description of the invention, as filed, as is indicated below (Rule 70.2(c)):

*(All replacement sheets comprising amendments of this nature should be indicated in point 1 and attached to this report).*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty	Yes:	Claims	1-8
	No:	Claims	
Inventive Step	Yes:	Claims	1-8
	No:	Claims	
Industrial Applicability	Yes:	Claims	1-8
	No:	Claims	

2. Citations and explanations

**see separate sheet**

PRELIMINARY INTERNATIONAL - SEPARATE SHEET

---

1. Reference is made to the following document:  
D1: EP-0886148A1
2. It does not appear that the state of the art known from the available prior art justifies the objections raised in accordance with Articles 33(2) and 33(3) PCT with regard to the present application.
3. The invention relates to a method and a device for determining the relative position of a mobile in relation to a known position of a reference station. The system is of the differential GPS type and the problem posed is the correction of errors caused by the propagation differences linked to the ionosphere when the mobile is at a distance from the reference station.
- 4.1 D1 is considered to be the closest prior art. Document D1 describes the use of linear combinations of the frequencies L1 and L2 of GPS satellites, on the one hand to reduce the initialization time and, on the other hand to reduce ionospheric error. In D1, to reduce ionospheric error, a corrected position is calculated as being a linear combination of two unambiguous positions, the first position having a phase measurement obtained at the frequency L1 and the second position having a phase measurement obtained at the frequency L2 (see D1, col. 3, lines 12-35 and claim 6).
- 4.2 The method according to the invention successively carries out, on the basis of the same set of pseudo-distance measurements, a plurality of calculations of the position of the mobile using different linear combinations of frequencies, the estimated position at the beginning of the calculation being the position calculated in the preceding step. In D1, a single position calculation is carried out and the single linear combination used for the position calculation is

PRELIMINARY INTERNATIONAL - SEPARATE SHEET

---

degenerated since it corresponds to the two frequencies L1 and L2. In D1, only two linear combinations are used to eliminate the ambiguity of the initialization processing, and none for the position calculation (see D1, col. 2, lines 10-55), which is different from the invention.

5. None of the documents cited either discloses or suggests the characteristics of claims 1 and 8, which therefore satisfy the criteria of novelty and inventive step (Art. 33(2) and 33(3) PCT).